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machine learning and related tools to s the development of simple behavioral	settings in which strategic models explaining and pre	behavior edicting	ogy and algorithms for the application of r is central. Among the topics studied was human subject behavior in networked ased voting and networked trading, among			
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15. NUMBER 19a. NAME OF RESPONSIBLE PERSON

19b. TELEPHONE NUMBER

Michael Kearns

215-898-7888

#### **Report Title**

Final Report: Predicting Networked Strategic Behavior via Machine Learning and Game Theory

#### **ABSTRACT**

The funding for this project was used to develop basic models, methodology and algorithms for the application of machine learning and related tools to settings in which strategic behavior is central. Among the topics studied was the development of simple behavioral models explaining and predicting human subject behavior in networked strategic experiments from prior work. These included experiments in biased voting and networked trading, among others.

Enter List of papers submitted or published that acknowledge ARO support from the start of the project to the date of this printing. List the papers, including journal references, in the following categories:

(a) Papers published in peer-reviewed journals (N/A for none)

Received	<u>Paper</u>	
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Number of Pape	ers published in peer-reviewed journals:	
	(b) Papers published in non-peer-reviewed journals (N/A for none)	
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Received Paper

01/13/2015 5.00 . Learning and Predicting Dynamic Behavior with Graphical Multiagent Models.,

AAMAS . 04-JUN-12, .:,

TOTAL: 1

Number of Non Peer-Reviewed Conference Proceeding publications (other than abstracts):

#### **Peer-Reviewed Conference Proceeding publications (other than abstracts):**

Received Paper

06/26/2012 3.00 Michael Kearns, Stephen Judd, Eugene Vorobeychik. Behavioral Experiments on a Network Formation

Game,

Electronic Commerce 2012. 04-JUN-12, .:,

TOTAL: 1

Number of Peer-Reviewed Conference Proceeding publications (other than abstracts):

#### (d) Manuscripts

Received Paper

06/26/2012 4.00 Leonid Gurvits, Stephen Judd. The Social Will-Testing Game and its Solution,

arXiv.org (06 2012)

TOTAL: 1

Number of Ma	nnuscripts:		
		Books	
Received	<u>Book</u>		
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Received	Book Chapter		
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		Patents Submitted	
		Patents Awarded	
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		Graduate Students	
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# Names of Faculty Supported NAME PERCENT SUPPORTED **FTE Equivalent: Total Number:** Names of Under Graduate students supported NAME PERCENT SUPPORTED **FTE Equivalent: Total Number: Student Metrics** This section only applies to graduating undergraduates supported by this agreement in this reporting period The number of undergraduates funded by this agreement who graduated during this period: ..... 0.00 The number of undergraduates funded by this agreement who graduated during this period with a degree in science, mathematics, engineering, or technology fields:..... 0.00 The number of undergraduates funded by your agreement who graduated during this period and will continue to pursue a graduate or Ph.D. degree in science, mathematics, engineering, or technology fields:..... 0.00 Number of graduating undergraduates who achieved a 3.5 GPA to 4.0 (4.0 max scale):..... 0.00 Number of graduating undergraduates funded by a DoD funded Center of Excellence grant for Education, Research and Engineering:..... 0.00 The number of undergraduates funded by your agreement who graduated during this period and intend to work for the Department of Defense ..... 0.00 The number of undergraduates funded by your agreement who graduated during this period and will receive scholarships or fellowships for further studies in science, mathematics, engineering or technology fields: ..... 0.00 Names of Personnel receiving masters degrees NAME **Total Number:** Names of personnel receiving PHDs **NAME Total Number:** Names of other research staff PERCENT SUPPORTED NAME **FTE Equivalent:**

**Total Number:** 

### **Inventions (DD882)**

## **Scientific Progress**

Developed novel machine learning methodologies for applications involving multiagent strategic models, including for:

- \* Networked Trading
- \* Biased Voting
- \* Hidden Markov Models

**Technology Transfer**